

REMARKS

Response to Rejections under 35 USC 102(e) and 103

Claims 1-3 and 5-11 are pending in this application and stand rejected under 35 USC 102 or 103.

Claim 1 is rejected under 35 USC 102(e) as being anticipated by U.S. Patent 6,365,081 (Beck). In addition, Beck is the primary reference used in all subsequent rejections of the claims under 35 USC 103. In particular, the Examiner asserts that Beck shows that is known to carry out a pultrusion process for preparing a continuous fiber-reinforced thermoplastic composite article by continuously pulling the fibers through a pultrusion process that includes a step of thermoforming the composite profile on-line by which it is curved, twisted, or provided with varied cross-sectional shape along its length and providing an article that is curved, twisted, or provided with a varied cross-sectional shape along its length. Applicants will clarify that the relied-upon sections and features in Beck do not teach the claimed pultrusion process nor support the rejections of the Claims.

Beck describes a process for making exterior siding panels for buildings, often called “vinyl siding”. The siding panels are long, straight, extruded profiles and, according to Beck’s invention, they have a rib structure or other sort of fiber reinforced rigid support member that runs in the length direction. When cut across the width direction of the profile, as shown in all the Beck Figures, the rib or support member may have a curved, cross-sectional shape but the profile of the composite panel is completely straight and does not curve, twist or change cross section along the length. Obviously, to be suitable for exterior siding usage, the panels cannot curve, twist or change longitudinal cross-sectional shape.

As described in more detail in the application, Claim 1 requires a pultrusion process that imparts, *along the length* of the composite, a curve, a twist, or a varied cross-sectional shape. The “length” direction in a pultrusion process is well known to be the direction in which the composite is pulled through the process. See page 6, lines 28 through 30 of the application. As described in more detail in the application, these composites can be directly cut to proper dimensions for use in various applications such as leaf springs, coil springs or twisted concrete reinforcement rods, without subsequent, “off-line” shaping that would require re-heating/re-melting steps to get curves, twists or similar shape variations.

Based on this major difference from the teachings of Beck, Claim 1 is clearly novel and unobvious, and allowable. All its dependant claims are similarly patentable and allowable.

Specific Responses to Dependant Claim Rejections under 35 USC 103

Claims 2 and 11 have been rejected under 35 USC 103(a) as being obvious over Beck in view of US Patent 4,290,248 (Kemerer). It is maintained that the Kemerer shows a continuous molding process using “depolymerizable and repolymerizable polystyrene”. It is applicants position that polystyrene is not depolymerizable and repolymerizable under molding conditions and request a showing of any evidence that will be relied upon to support this assertion. Moreover, while Kemerer is molding thermoplastics in a continuous process, it does not teach or suggest a **pultrusion** process where resin impregnated, continuous fibers are **pulled**, under tension, through the process and would certainly not be moldable in Kemerer’s conditions. Therefore, like any other molding process, Kemerer adds nothing to teach or suggest that pultruded composite profiles can be provided with a longitudinal curve, twist, varied cross-sectional shape.

Claim 9 has been rejected under 35 USC 103(a) as being obvious over Beck in view of the Moore ESCR Evaluation article. Although teaching the Tg of Isoplast TM, a rigid, thermoplastic polyurethane, there is nothing teaching or suggesting the claimed pultrusion process providing pultruded composite profiles with a longitudinal curve, twist, varied cross-sectional shape in-line.

Several claims stand rejected under 35 USC 103(a) as being obvious over Beck in view of US Patent 4,828,775 (Willenberg). Claim 3 is obvious, according to the Examiner, because Willenberg teaches a rotary-type die. Claim 5 is asserted to be obvious because Willenberg teaches the use of a rotating die at elevated temperatures. Applicants disagree with the Examiner’s rejection for the following reasons.

As discussed above, Beck does not teach or suggest in-line thermoforming to provide pultruded composite profiles with a longitudinal curve, twist, varied cross-sectional shape. In Willenberg there is no further teaching to suggest combination with Beck nor to suggest the use of a rotating die with Beck’s process to produce long, flat siding panels. Claims 3 and 5 are therefore patentable.

Claim 6 has been rejected as being obvious over Beck in view of US Patent 4,897,230 (Gross). The rejection is improper because Gross’s foam process is completely unrelated to

pultruded composite profiles which are pulled under tension through the entire shaping process.

Claim 7 has been rejected as being obvious over Beck and Gross in further view of US Patent 4,076,570 (Medley). It has not been shown however, where there is any teaching or suggestion of a pultrusion process where resin impregnated, continuous fibers are pulled, under tension, through the process to form profiles and provided with a longitudinal curve, twist, varied cross-sectional shape. Claim 7 is therefore patentable.

Claim 8 has been rejected as being obvious over Beck in view of US Patent 4,323,533) Bramhall. Here, the Examiner asserts that Bramhall discloses a thermoforming process wherein the thermoforming is carried out by winding a composite profile on a mandrel as the means for pulling the composite through the die, and then cooling the shaped composite to a temperature below the solidification temperature. The rejection is improper because no combination of Beck and Bramhall teach or suggest a pultrusion process where resin impregnated, continuous fibers are pulled, under tension, through the process to form profiles and provided with a longitudinal curve, twist, varied cross-sectional shape.

In general, no cited reference nor any combination of them teach alteration of a pultruded profile after it emerges from the die to provide a longitudinal curve, twist, varied cross-sectional shape. The absence of the disclosure of this critical step renders Claim 1 patentable over the prior art as well as defendant Claims 2, 3, and 5-11.

For the above-stated reasons, Applicants respectfully request that a Notice of Allowance be granted for Claims 1-3 and 5-11.

Respectfully submitted,



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